REMARKS

§102 and §103 Rejection Based on Nakaoka

It is stated in the December 26, 2007 Office Action that Claims 1-22, 25-29, and 31-39 have been rejected under §102 as anticipated by, or in alternative under §103 as obvious over Nakaoka (US 5,686,374). Applicants, however, respectfully request reconsideration and withdrawal of this rejection.

As recited in Claim 1, Applicants' composition is capable of being maintained in a fluidized state within a fluid cracking catalyst unit. Applicants respectfully submit that the composition described by Nakaoka does not possess the property of "fluidizable" in the sense one of ordinary skill would construe this property, especially with respect to fluidizable particles suitable for use in a FCC unit.

In support hereof, Applicants have enclosed relevant entries from "Fluidization Engineering" Second Edition, Butterworth-Heinemann, 1991, pp. 77-79, 93. It is submitted that the Geldhart classifications described on page 77 clearly differentiate materials such as Applicants' fluidizable composition from those described by Nakaoka. Particles classified as "aeratable" are described as materials having a small median particle size and/or density such that the solids are easily fluidizable. Page 77 mentions that FCC catalyst is representative of such particles. The graph on page 78 further illustrates such particles as having the same particle size range as that recited by Applicants for their preferred embodiments, e.g., claim 43, which recites average particles size in the range of 20 to 150 microns. Nakaoka neither discloses nor suggests such particles or compositions. Nakaoka illustrates its invention with a catalyst having a diameter of 1.6 mm, which is typical for a conventional fixed bed catalyst. This was noted by Applicants in their last communication. Geldhart classifies materials of this size as being "spoutable", which is illustrated in the chart on page 77 as those materials having sizes greater than 1000 microns. Geldhart describes spoutable materials as those that are difficult to fluidize. Indeed, page 79 of the enclosed entry describes that it would take an enormous amount of gas to fluidize such solids, often far more than required for chemical operations. It is submitted that Geldhart classifications represent how one of ordinary

skill would define "fluidity" within a FCC unit. It is submitted that one of ordinary skill would not consider Nakaoka's catalysts to be fluidizable in a FCC unit, nor would Nakaoka suggest such catalysts.

§103 Rejection Based on Nakaoka in view of Chen

It is stated in the December 26, 2007 Office Action that Claims 23, 43, and 44 have been rejected as unpatentable over Nakaoka in view of Chen (US 4,627,911). Applicants respectfully traverse.

It is submitted that Column 1, lines 27-33, in Chen merely notes that zeolite has been used in two types of catalysts. One type of zeolite catalyst is used in fixed bed applications with no particles smaller than 1/25 inch. The second type of catalyst is used in a fluidized beds (FCC), wherein the particle size ranges from about 1 to 140 microns, and the average particle size is about 62 microns. Chen, however, does not equate the two type of catalysts in terms of their size, nor does Chen state that they are interchangeable for each application. The only note made by Chen is the fact that zeolite is utilized in the two types of catalysts. It is therefore not seen how this section of Chen would lead one of ordinary skill in the art to modify Nakaoka's hydrotreating catalyst to have a size in the range of FCC particles, or otherwise modify such catalysts to be capable of fluidization in a FCC unit. Indeed, Chen states that fixed bed applications are to have particles ***no smaller*** than 1/25 inch, which is about 1000 microns. Chen therefore suggests away from modifying fixed bed catalysts such as Nakaoka to be aeratable or fluidizable per the Geldhart classification, and certainly suggests away from catalysts having the average particle sizes now recited in claim 43. Nakaoka and Chen are no more applicable to Claim 23, which recites an alumina having the same particle size range of 20 to 150 microns, or claim 44, which recites the composition of claim 1 having an average particle size in the range of 60 to 90 microns. Withdrawal of the rejection of these three claims based on Nakaoka and Chen is therefore requested.

§103 Rejection Based on Nakaoka in view of Roberie

It is stated that in the Office Action that claims 24 and 40-42 are rejected under §103 as being unpatentable over Nakaoka in view of Roberie (US 6,482,315). Applicants respectfully traverse.

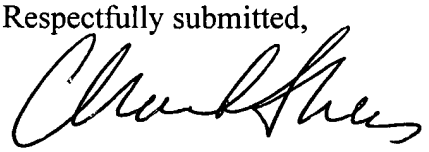
Roberie discloses a composition based on vanadium that is designed for use in fluidized catalytic cracking of sulfur-containing hydrocarbon feedstocks. The composition is designed to reduce sulfur in fractions produced in the unit and later processed to produce low sulfur gasoline. It is not seen, however, why one of ordinary skill in the art would add such a vanadium containing composition to Nakaoka's hydrocracking catalysts. Nakaoka teaches hydrocracking catalysts containing Group VI or Group VIII metals. See Nakaoka's abstract. It is submitted that these metals are selected for their hydrogenation properties needed during a hydrotreating processs, and neither Nakaoka or Roberie suggests that vanadium possesses the hydrogenation properties of these metals. Therefore nothing in Nakaoka or Roberie suggests the combination of Roberie's vanadium composition with Nakaoka's hydrotreating catalyst composition.

Roberie's teaching goes no further in suggesting the particle size of Applicants' invention. It is correctly noted that Roberie's composition is fluidizable. To combine Roberie's composition with Nakaoka's, however, there would have to be some motivation to modify Nakaoka's composition to also be fluidizable before it would be combined with Roberie's composition. It is submitted that one of ordinary skill in the FCC art would avoid doing so. The metals taught by Nakaoka, such as nickel, are of a type known to be contaminants in FCC processes, and are avoided or at least regulated to minimize coking of the catalyst. See the attached pages 339-346 of Fluid Catalytic Cracking: Science and Technology (1993), and in particular Section 2.1 for Nickel on page 341. Since the skilled artisan would avoid adding Nakaoka's composition to an FCC unit, there is accordingly no need to modify it to be fluidizable. Withdrawal of the §103 rejection based on Nakaoka and Roberie is therefore requested.

Accordingly, it is respectfully submitted that the claims are in condition for allowance, and Applicants request notification to that effect in the form of a Notice of Allowability.

Applicants have also enclosed a Form 1449 listing the references mentioned above and respectfully request notification that the references have been considered herein.

Respectfully submitted,



Charles A. Cross
Attorney for Applicant
Reg. No. 32,406

Tel: (410) 531-4518
W. R. Grace & Co.-Conn.
7500 Grace Drive
Columbia, Maryland 21044

Charge: DAV/FCC